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AUTHOR Learn, Richard L.
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ABSTRACT

In spring 1983, a study was conducted to compare the business and industry linkage structures of Pennsylvania's community colleges with the structures advocated by researchers and administrators in the literature. Surveys were sent to presidents and superintendents of all 30 Pennsylvania community colleges, requesting information on the types and purposes of the linkages they had with industry, the office or division of the college responsible for administering the linkages, and the personnel involved. Study findings, based on responses from 19 colleges and a review of the literature on business/industry cooperation, revealed that: (1) several types of linkages identified in the literature, such as customized training programs, utilization of business and industry personnel, and practical experiences for students, were employed in Pennsylvania, while others, such as sharing of physical resources, were not employed; (2) although the literature suggested that a centralized office to administer business and industry linkages would be beneficial, linkage efforts in more than half of the cases were dispersed throughout the college; (3) barely half of the respondents had staff working full-time to effect linkages, although the literature indicated this to be the most effective method; and (4) both the literature and survey results showed that using business and industry representatives on advisory councils is a common administrative practice. The literature review and questionnaire are included. (Author/HB)

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A COMPARISON BETWEEN BUSINESS AND INDUSTRY LINKAGE STRUCTURES IN PENNSYLVANIA COMMUNITY AND JUNIOR COLLEGES AND THOSE DESCRIBED IN THE LITERATURE

A Research Paper

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts in Adult/Community Education

Indiana University of Pennsylvania

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by

Richard L. Learn

May, 1983*

*This report is a revision of the original study. It includes information from surveys that had not been received at the time that the report was given to faculty members at IUP.

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ABSTRACT

The purpose of this study was to compare and contrast the business and industry linkage structures of Pennsylvania community and junior colleges with the linkage structures advocated by researchers, administrators, and other writers in the field. The comparison was done with respect to four categories: 1) types of linkages, 2) the office or division of the college that administers the linkages, 3) personnel involved in administering the linkages, and 4) the purposes of the linkages.

The first objective of the study was to review the literature concerning these four aspects of the linkage structures. These findings were used to develop a survey that was sent to all Pennsylvania community and junior colleges, which was the second objective of the study. Finally, the results of the study were compared and contrasted with the findings of the literature, identifying possible strengths and weaknesses of the linkage structures in Pennsylvania community and junior colleges.

The findings showed that the colleges in Pennsylvania frequently linked with business and industry by means of customized training, utilization of business and industry personnel, and practical experiences for students. This corresponded well with the findings of the literature. In contrast, sharing of physical resources and granting of faculty releases to work in business and industry were seldom used as linkages in the Commonwealth, although they were mentioned in the literature.

Another difference between the findings of the literature and the

results of the survey was that Pennsylvania colleges do not always centralize the administration of the linkages, as authors in the field suggested. This centralization could occur by having one certain office or division of the college administer the linkages and by having specific staff members involved in it on a full-time basis. A final finding of the study was that purposes for the linkages are generally implied by the nature of the linkage activity and usually evolve from the community colleges' philosophy of community service.

This study served to identify the above characteristics as possible strengths and weaknesses of Pennsylvania community and junior colleges. It also identified the weaknesses as potential areas for further study.

Chapter I

INTRODUCTION

A recent trend among community and junior colleges is that of forming various types of linkage agreements with business and industry. Jackman and Mahoney (1982) described the basis for these linkages in their book Shoulders to the Wheel.

> They [the linkages] represent the converging interests of two community groups, very different from one another, but with complementary needs. The colleges, on one hand, are motivated by a community service philosophy and a need for industry know-how and equipment to insure that their occupational programs are current. On the other hand, industries have needs for employees with specialized training, training that industries frequently cannot provide themselves. (p.3)

The occurrence of linkage agreements is numerous and still growing; however, several professionals in the field have recently expressed the need for more study about them. Gilder (1981) cited community college associations in four states - California, Florida, New York, and North Carolina - as recommending that state policies on community colleges include the recognition of such a need.

> Two year colleges should develop and disseminate specific information about these industry-education linkages for the purpose of establishing new linkages at the local level. (p.7)

Peart (1977a) also stated this need for further study about college/

business and industry linkages.

> The rapid growth and changes of adult education programs are placing greater burdens on the postsecondary institutions today. Educators in the fast expanding adult cooperative education fields are desiring answers to many questions concerning agreements [between postsecondary institutions and business and industry]. The existing research concerning agreements is inadequate. (p.6)

Russell (1978) agreed, "Further study of what attributes affect a good collaborative process between educators and employers is needed" (p.92).

Forming and maintaining college/business and industry cooperation involves the consideration of a variety of factors, factors such as cost, location of and time offerings for courses, and reconciling possible differences between employers' needs and colleges' educational philosophies. The factor addressed by this project was, in general, the structural context of the community or junior college within which these linkages are administered.

Chapter II

FRAMEWORK OF STUDY

Statement of the Problem

The purpose of this study was to compare and contrast the business and industry linkage structures of Pennsylvania community and junior colleges with the linkage structures described and advocated by researchers, administrators, and other writers in the field.

Specific Research Objectives and Procedures

The comparison between Pennsylvania colleges and the findings in the literature was done with respect to four questions.

1. What types of business and industry linkages are used by community and junior colleges?
2. Through what contact office or division of the colleges are the linkages administered?
3. What personnel of the colleges are involved in administering the linkages?
4. What are the colleges' purposes for participating in linkages with business and industry?

The initial phase of this study was to review the literature in order to identify answers to the four questions listed above. This information was then used to develop a survey to identify the characteristics of business and industry linkages in Pennsylvania community and junior colleges. It was sent to the thirty (30) institutions that were listed

in the Pennsylvania section of the Community, Technical, and Junior College Directory (American Association of Community and Junior Colleges, 1982, pp.58-59). Finally, the results of the survey were compared and contrasted to the findings in the literature to identify possible strengths and weaknesses of the current linkage structures and to make subsequent recommendations.

Definition of Terms

For the purposes of this project, a linkage structure was considered to be any person or any component of a college's organizational structure through which the college interacts with business and industry in order to meet mutual needs.

Types of linkages were considered to be any activities in which the colleges work collaboratively with business and industry in order to meet the needs of one or both of the participants. These activities could range form interships for the colleges' students to representative memberships on advisory councils to the sharing of resources.

The contact office or division was considered to be any academic department or school, any subcomponent of such a department or school, or any division or subdivision of community services of the colleges through which their business and industry linkages are administered.

The personnel involved in administering linkages were considered to be any dean(s), director(s), coordinator(s), manager(s), secretary or secretaries, receptionist(s), assistant(s), or other such management or support personnel of the college who are involved on either a full- or

part-time basis in administering, managing, or directing the colleges' business and industry linkages.

The colleges' purposes for business and industry linkages were considered to be any stated purpose, intent, assumed resulting benefit, or other such reason for which the colleges engaged in the linkages.

Rationale

The popularity of community and junior college linkages with business and industry has come about for a number of reasons. One is that funds for educational services from the colleges have become scarce while the demand for them has increased. This has created a need for the institutions to maximize the use of their resources. (Warmbrod, Persavich, & L'Angelle, 1981, p.v). Another reason is that frequent changes in technology and in our country's economic base have created a need for retraining and continually upgrading our nation's current work force (Brown, 1981, p.1).

The present economic conditions have also increased the importance of such linkages. This has been emphasized by President Reagan in that his policies have required the pooling of resources by state and local agencies and organizations in order to address their own needs (Jackman & Mahoney, 1982, p.vii). Still another reason for the growing popularity of community and junior college/business and industry linkages is that corporations are increasingly identifying corporate education and training as means for raising productivity and, consequently, corporate earnings (Brazzeil, 1981, p.1).

Community and junior college linkages with business and industry, while growing in popularity, are still relatively new types of arrangements; therefore, like any new endeavers, they have created new problems that must be solved. This has, in turn, led to the study of these problems and of their potential solutions. The popularity of and resulting study about linkages was noted by Fraser, Gold, Rankin, Rudick, and Ward, "Collaboration among business/industry, education, labor, government and community service institutions is a growing field of action and investigation" (1981, p.xxv).

While Fraser et al. recognized that education/business and industry collaboration is a "growing field of ... investigation," other authors have specifically cited a need for even further investigation in this field. Warmbrod et al. (1981) described a Needs-Sensing Workshop (pp.123-145) that was conducted by the Postsecondary Occupational Education Project at the National Center for Research in Vocational Education at the Ohio State University. The purpose of the workshop was "to identify a topic addressing a priority postsecondary occupational education need" (p.1). The authors cited the members of the workshop as developing a "list of important research and development topics for postsecondary occupational education" (p.140). The list included the following topics under the heading "Linkages/Articulation."

1. Research, models, and state-of-the-art studies dealing with linkages and interfacing of education with business, industry, labor, and government

2. Research and models for improving occupational postsecondary institutions interfacing with business and industry (pp.144-145)

Gold, Jung, and Bushnell (1982) recommended not only that further research be done in the field of education/business and industry collaboration, but also that the federal government establish specific policies concerning the field and its research.

> The federal government should collect on a periodic basis quantitative and qualitative data as rough but valid indicators of the scope of industry-education-labor relationships.
>
> Information available on the extent and types of business and labor involvement with education is almost entirely anecdotal. If the building of effective relationships among these sectors is to be raised to the level of national policy, more reliable reports on the status of these relationships is essential. (p.182)

In summary, the occurrence of community and junior college linkages with business and industry is increasing. This has led several professionals in the field to call for further research about them. The rationale for this study is based on these calls for more research in the field.

Chapter III

REVIEW OF RELATED LITERATURE

Collaboration of community and junior colleges with business and industry yields a variety of benefits to both participants. Quality training at reduced cost, the development of human resources, and custom-trained potential employees are provided to business and industry. The colleges profit by gaining job opportunities for their students, current knowledge of business and industry equipment and practices, and additional financial resources. (Warmbrod et al., 1981, p.1) In this study of collaborative efforts between these two establishments, the linkage structures described in the literature were compared and contrasted with those occuring in community and junior colleges in Pennsylvania. Four categories were used in the comparison:

1. types of linkages,
2. the contact office or division of the college through which the linkages are administered,
3. the college personnel involved in administering the linkages, and
4. the colleges' purposes for participation in linkages.

The literature provided two general types of information about linkages. The first, and by far the most common, was information that was descriptive in nature. This was noted by Gold et al., "Information available on the extent and types of business and labor involvement with education is almost entirely anecdotal" (1982, p.182). However, the literature did also provide a second type, information that was analytical and consultative.

Types of College/Business and Industry Linkages

The majority of the information available on community and junior college linkages with business and industry described the various types of linkages. Of the literature reviewed, only one author directly advocated establishing any particular type of linkage. Huddleston (1982) quoted Robert Sorenson in a personal interview as recommending that colleges establish special centers as a means for linking with business and industry.

> To foster collaboration, schools will need to...establish productivity/quality-of-work-life centers on each campus for knowledge transfer, research, dissemination, and training; assign full-time positions to this effort; call on companies every year; and perhaps have the college president make at least one call each week. (Huddleston, 1982, pp.106-107)

Lists of types of linkages. Many authors developed lists of common types of linkages. In 1977, Dieffenderfer, Kopp, and Cap suggested such a list of eight types of collaborative activities:

1. utilizing a staff development plan for educators that involves business, industry and labor,
2. having business, industry, and labor officials as members on advisory committees,
3. establishing cooperative internship programs at sites of business, industry, and labor,
4. exchanging personnel between schools and other employing agencies,
5. having teachers, counselors, and students visit work sites to see business, industry, and labor in operation,
6. conducting workshops that utilize business, industry, and labor expertise,

7. utitlizing business, industry, and labor resources within schools, and
8. securing programmatic support for cooperative efforts with business, industry, and labor.

The National Association for Industry-Education Cooperation outlined a different set of possible activities for industry and education.

1. Instruction and Curriculum Development
   A. Community Resources Workshops (to identify and demonstrate usage of resources within the community which have educational value)
   B. In-Service Training (in such areas as economic education, career awareness for secondary school subjects, teacher internships in industry, curriculum development)
2. Career Guidance
   A. In-Service Training for Guidance Counselors
   B. Career Guidance Materials for Students
   C. Internships for Counselors (within industry)
3. Materials and Service Activities
   A. Materials or Equipment Provided by Industry (to enhance learning in schools)
   B. Speakers Bureau
   C. Work-Study and Placement
   D. Field Trips
4. Educational Management
   A. Industry Helping Education to Manage by Objectives
   B. Short and Long Term Planning

C. Analyzing Problems and Making Decisions (cited by Russell, 1978, pp.80-82)

Warmbrod et al. (1981) provided the following list of ten types of collaborative practices:

1. Apprenticeship Training - involving cooperation and sharing toward the goal of preparing apprentices,
2. CETA Programs,
3. Community-wide Collaboration - collaboration between the college and a number of community organizations,
4. Community-based Education - programs based in the community and using it as a resource,
5. Contract Services for Industry,
6. Cooperative Education and Field Experience - supervised employment or field experience for credit,
7. Economic Development Services - cooperation among a state or local economic development agency, industry, and the college in a program to create new jobs by helping new and existing industries,
8. Faculty "Return to Industry" Programs - personnel exchange programs between colleges and industry,
9. Program Development Sharing - industry's providing expertise, equipment, and materials to a college, and
10. Specialized Programs. (pp.5-6)

Also in 1981, Gold categorized four mechanisms for collaboration among education, labor, and business and industry. The first was "effective programs," such as cooperative and career education, that involve educators,

employers, and/or unions in their planning and implementation. Coordination units, Gold's second category, are those components of an institution's organizational structure that administer the collaborative activities. Conferences and collaborative councils were his last two collaborative mechanisms. (p.9)

In 1982, Jackman and Mahoney compiled a different list of common types of cooperative arrangements.

> Cooperative arrangments most frequently involve: plant-specific training under contract with a local employer; equipment use or donation; industrial assistance in developing programs, providing materials, monitoring progress, providing support funds, and detailing job and skill requirements; faculty assignments within industry; program publicity; industrial personnel as part of the instructional force; facilities sharing; and on-the-job training. (p.vii)

Clark and Rinehart (1982) compiled a similar list. They agreed with Jackman and Mahoney by including employment of faculty in the private sector, teaching by business and industry specialists, committees and boards (industrial assistance), and funded training projects (plant-specific training under contract). In addition, they listed cooperative education, work-study, and apprenticeships; student visits to work sites; special events; and staff activity involvement - related to job placement for students. (pp.2-4) This list of activities was also included in an article written by Rinehart alone in 1982.

Descriptions of actual linkages. A significant number of writers, rather than developing concise lists of types of linkages, compiled

descriptions of actual linkages. The most frequently described linkage was that of customized training. Jackman and Mahoney stated that 41 of North Carolina's 58 community and technical colleges provided specialized training for 95 new and expanding industries during the 1979-80 school year (1982, p.3). The Association of American Colleges (1980), Bulpitt and Lohff (1980), Lancaster and Shuford (1980), Parnell and Yarrington (1982), Peart (1977b), Warmbrod et al. (1981), and Watkins (1982) presented descriptions of numerous customized training programs.

Other such descriptions served to identify special characteristics of this training. First, it is sometimes done on-site at the facilities of business and industry. Such arrangements are practiced by the College of Lake County in Grayslake, Illinois (Swalec, 1981). Second, it can take any form, ranging from degree programs - as is the case with community colleges in the Dallas County Community College District - to non-credit courses - as practiced by Johnson County Community College in Overland Park, Kansas (Bulpitt & Lohff, 1980, pp. 11-26;34). It can also take the form of awarding college credit for in-house training done by business itself. Such a practice is done by Union College of Schenectady, New York, for General Electric Corporation. (Brazziel, 1981, p.9) A final special characteristic identified in the literature is one of having the business or industry pay for the pre-service training of the college instructor. This was done by Associated Builders and Contractors, Inc. of Casper, Wyoming for two instructors at Casper College. (Jackman & Mahoney, 1982, p. 18)

A second commonly-cited type of linkage between community and junior colleges and business and industry was that of student internships,

apprenticeships, and other such practicum experiences. Descriptions of such programs were given by Bulpitt and Lohff (1980), Lancaster and Shuford (1980), Parnell and Yarrington (1982), Peart(1977b), Swalec (1981), and Warmbrod et al. (1981).

The practice of granting release time to faculty members so that they may work for short terms at local businesses and industries was also described. Central Piedmont Community College in Charlotte, North Carolina, grants such releases to full-time instructors for terms lasting one quarter (Bulpitt & Lohff, 1980, p. 4). Orangeburg-Calhoun Technical College in Orangeburg, South Carolina, does the same during the summer months (Peart, 1977b, p.101). Peart also described instances of this practice in different colleges, as did Bridge (1980).

Some authors described situations in which personnel from business and industry teach courses on college campuses. Such is the case at Delgado Community College in New Orleans (Jackman & Mahoney, 1982, p.21) and at Orangeburg-Calhoun Technical College (Peart, 1977b, p.101). Bridge (1980) also described linkages of this type.

The literature reviewed also described several types of services provided by specific colleges for business and industry. An annual Speaker Series is offered by Delta College of University Center, Michigan, for the local business community as well as for students of the college (Bulpitt & Lohff, 1980). Another type of service, a resource library and counseling service for local business, is provided by the Center for Small Business at Daytona Beach Community College in Florida (Fine, Mojock, & Collins, 1981, p.4). Similarly, technical advice by faculty is

offered to industries by Delgado Community College in New Orleans (Jackman & Mahoney, 1982, p.21).

Three other types of linkages at specific colleges were described less frequently in the literature. First, advisory committees, composed in part of business and industry representatives, were described for the Industrial Engineering Technology Program at Moraine Valley Community College (Bulpitt & Lohff, 1980, p.57) and for the Center for Industrial Development at Calhoun Community College in Decatur, Alabama (Warmbrod et al., 1981, p. 80). A second type of linkage, a joint effort research project, was conducted by the Tennessee Valley Authority and Maryland Technical College in Spruce Pine, North Carolina (Jackman & Mahoney, 1982, p. 30). Finally, business laiasons to identify educational needs of employees in major companies were identified by the University of Wisconsin-Parkside (Johnson, 1981).

Summary. The information available in the literature on types of community and junior college linkages with business and industry was mainly of two groups, lists of common types of linkages and descriptions of actual linkages. Overall, the most common types of linkages were (1) customized training programs, (2) sharing of physical resources, (3) internships and other practicum experiences for students, (4) temporary faculty releases to work in business and industry, (5) business and industry personnel teaching or conducting special presentations on campuses, (6) special services by colleges for business and industry, (7) advisory committees, and (8) visitations to work sites.

Contact Office or Division of College

Considerably less information was available in the literature concerning the contact office or division of colleges that administers business and industry linkages. As was the case with types of linkages, the majority of this information was descriptive rather than analytical and consultative in nature.

Analytical and consultative information. Gold (1981) emphasized the importance of having special organizational structures for managing linkages, "institutional structures are needed to sustain these relationships [between industry, labor, and education] and assure the accountability of the participants" (p.2). He later explained, "Coordination units solve the problem of assigning responsibility and accountability for day-to-day relationships with other community institutions" (p.9).

Jackman and Mahoney (1982) summarized the characteristics of the models of cooperation between colleges and business and industry described in their text.

> The models also suggest that no single access point in the colleges is more optimal than another for businesses interested in working jointly with institutions. The models show that programs are operated through various offices. Some agreements are administered by special divisions organized to seek out and respond to industry needs; some are managed through Community Service Divisions; others are directed through Occupational Education Departments. The richest areas for initiation of these agreements appears to be the management structures of

the colleges. These structures include the colleges' Board of Trustees and the advisory committees that give counsel to occupational programs. (p.42)

As described previously, Huddleston (1982) cited Robert Sorenson as recommending that schools establish a special type of linkage division, a productivity/quality-of-work-life center. Such centers would serve the purpose of providing knowledge tranfer, research, dissemination, and training for business and industry. (p.106)

Descriptions of actual contact offices and divisions. The literature frequently included descriptions of special-purpose centers as business and industry contact divisions of colleges. One of these, the Small Business Development Center of Brookdale Community College in Lincroft, New Jersey, offers management assistance to businesses in its local community (Bulpitt & Lohff, 1980, p.2). A similar center, the Center for Small Business at Daytona Beach Community College in Florida, provides private counseling services, seminars and workshops, and a resource library for its local business community (Fine et al., 1981, p.4). A different type of center, the Center for Industrial Developement of Calhoun Community College in Decatur Alabama, develops customized curricula for business and industry (Warmbrod et al., 1981, p.80).

A division similar to these centers, the Business and Professional Institute of the College of DuPage in Glen Ellyn, Illinois, responds directly to all types of industrial needs. Finally, the Public and Community Service Project within the Community Services Division of Hudson Valley Community College in Troy, New York, fulfills on-the-job

training needs of local government agencies and private industry. (Jackman & Mahoney, 1982, pp. 24; 27)

Summary In summary, the literature reviewed indicated that creating a special division in community and junior colleges would be the most suitable means for administering linkages with business and industry. However, most authors did not note that such a division existed for the linkages they described, implying this is not necessarily the case at many institutions.

Institutional Personnel Involved in Linkages

As was the case with the contact office or division of colleges that administer business and industry linkages, relatively little information was available in the literature concerning the institutional personnel invloved in the linkages. However, a greater portion of this information was consultative in nature rather than merely descriptive, when compared to the information concerning the first two questions.

Special staffing issues. Two authors directly addressed the issue of which community and junior college personnel are invloved in administering business and industry linkages. Gold (1981), in discussing coordination units that administer linkages of colleges, stated, "Career and vocational coordinator positions... and industry services coordinators are all of proven value when supported by leadership committees and competently staffed" (p.9). Nelson and Piland (1982) listed, as a staffing issue to be addressed before opening a small business development program, the consideration of the feasibility of having a college staff member serve as

a coordinator for the program (p.9).

Staff for business and industry centers. Huddleston (1982) cited Sorensen as recommending that full-time positions be assigned to the efforts of productivity/quality-of-work-life centers (p.106). In a description of an existing center, Brazziel (1981) noted that a faculty member serves part-time as the director of the Small Business Development Center at Brookdale Community College in Lincroft, New Jersey (p.2).

Advisory committees. Some authors suggested that college personnel should be representatives on committees that not only advise, but also initiate linkages with business and industry. Brown (1981) suggested a list of specific personnel to be included in the committees. He stated that a team of representatives for initiating collaboration should include

1. a person who can commit the college and its resources
2. a person to represent the academic divisions of the college and who knows of the college's total offerings and academic procedures
3. a person familiar with the technology of the specific business or industry, and
4. a contact person who can represent the college with follow-up. (p.10)

Gold (1981) identified one type of coordinating unit between colleges and businesses as being vocational and career education advisory committees. (p.9) Jackman and Mahoney (1982) advised that college representatives who are willing to donate the necessary time be among the members of active program advisory committees (p.45).

Summary. In general, the literature suggested two major groups of college personnel to be involved in administering linkages with business

and industry. They are coordinators, particularly directors of special business and industry centers, and representatives on advisory committees.

Institutional Purposes for Linkages with Business and Industry

In general, the philosophy of community colleges is to provide "high quality educational services and programs in response to community needs" (Jackman & Mahoney, 1982, p.vii). This is the underlying purpose of any program of a community college. However, each individual program of a college is likely to have a purpose which is more specific than this. The literature reviewed identified many such specific purposes. Most often it did so through the descriptions of existing linkage programs.

Special service centers. The type of linkage whose purpose was most frequently noted was the provision of services for business and industry through specialized centers of the community colleges. Most often their purposes included providing consultation to local small businesses. For example, the purpose of the Small Business Development Center of Brookdale Community College in Lincroft, New Jersey, is to provide management assistance to businesses in the local community (Bulpitt & Lohff, 1980, p.2). Similarly, the Center for Small Business at Daytona Beach Community College has a purpose of providing private counseling services, seminars and workshops, as well as a resource library for the local business community (Fine et al., 1981, p.4); and the Center for Industrial Development at Calhoun Community College in Decatur, Alabama, has a purpose of developing customized curricula and providing consultation, seminars and short courses for business and industry (Warmbrod et al., 1981, p.80).

The purpose of the Business and Professional Instutute of the College of DuPage in Glen Ellyn, Illinois, was more general - to address the needs of business and industry. A different purpose was stated for the Public and Community Service Project within the Community Services Division of Hudson Valley Community College in Troy, New York. It fulfills on-the-job training needs of local government agencies and private industry, and it provides services to upgrade the employment skills of its local constituency. (Jackman & Mahoney, 1982, pp.24; 27)

Finally, Huddleston (1982), in citing a personal interview with Robert Sorenson, stated a purpose for creating special centers. Sorenson advocated establishing productivity/quality-of-work-life centers to foster collaboration by providing knowledge transfer, research, dissemination, and training to business and industry. (p.106)

Faculty releases. Some authors noted the purposes for the practice of temporarily releasing faculty. The purpose for this at Champlain College in Burlington, Vermont, and at Central Piedmont College, in Charlotte, North Carolina, is to keep education current with the needs and techniques of business and industry (Bridge, 1980, p. 36; Bulpitt & Lohff, 1980,p. 4). Similarly, Hagerstown Junior College in Hagerstown, Maryland, releases faculty to "reinforce, update, or expand the skills and knowledge required to keep current in their professions" (Warmbrod et al., 1981, p.102).

Other types of linkages and summary. A purpose was also stated in the literature for another type of linkage, advisory councils. The purpose of the Advisory Committee for the Industrial Engineering Technology

Program at Moraine Valley Community College is to assist the program's administrator by

1. recruiting students from the business sector,
2. insuring that subject matter matches business and industry's needs,
3. developing materials that reflect new business techniques,
4. providing specific problem activities around which the program's students can serve internships,
5. employing students and graduates, and
6. providing the expertise needed for students' overall professional development. (Bulpitt & Lohff, 1980, p.57)

In summary, the literature identified the purposes for only some of the types of community and junior college linkages with business and industry. For other types of linkages - such as customized training, practicum experiences for students, and visitations to work sites - the purposes are implied by the nature of the activity itself. Whatever the case, the underlying basis for all these linkages is the community college's philosophy of community service.

Related Information

In addition to information that directly answered the four research questions of this study, the literature yielded some information that related to the general subject area of community and junior college linkages with business and industry. This other information provided general guidance for the linkages.

Brown (1981) recommended a set of means for initiating contacts with

business and industry. He suggested developing a list of companies with the names and titles of contact people for each. This list could represent potential clients as well as information and resource people who could give feedback on ideas and approaches. Brown also stated that having such a list of "associates" could help to reduce any hesitation that other business representatives may have when they are initially contacted. In addition, he listed part-time faculty who have full-time jobs with business and industry as well as members of Boards of Trustees and other advisory boards as resources for contacts. (pp.3-4)

Later in his report, Brown listed four activities to use as initial contacts. First, he suggested holding a meeting with a number of companies that employ people in an occupation in which the college has an interest. Second, colleges can survey business and industry to identify their training needs, then follow up by informing them that the college can provide this training. Next, he recommended simply choosing a training area and directly contacting companies regarding the training. Finally, he suggested scheduling meetings with individual companies to explore ways of working cooperatively. (pp.7-10)

Jackman and Mahoney (1982) discussed a different aspect of linkages. They outlined a list of elements included in effective cooperative agreements:

1. a written agreement specifying all the details of the program,
2. a willingness on the part of both the college and the industry to listen carefully to each other, make any necessary compromises, recognize each

other's unique contributions, and understand their distinctive interests,

3. scheduled meetings between program laiason people,
4. commitment on the part of executive personnel from each organization, and
5. the creation of a working advisory committee composed of both college and industry personnel. (p.viii)

Similarly, Warmbrod et al. (1981) developed a list of "Guidelines for Industry-Education Cooperation." It was composed of the following eleven points.

1. There must be good, clear communication between key persons in industry and education.
2. Excellence in teaching is essential.
3. There must be institutional flexibility in meeting the needs of industry.
4. Programs offered must be of high quality.
5. Good, active advisory committees are important.
6. Education should have a quick response time in meeting industry needs.
7. There must be recognition of mutual need.
8. The support of administrators and faculty within the college is required to successfully serve industry.
9. Careful and thorough planning in each cooperative effort is essential.

10. A clearly written agreement or contract helps achieve successful completion of joint endeavor.
11. There should be continued evaluation of the program to update and improve it. (pp.121-122)

Finally, the Ohio Board of Regents (1982) also developed information on business and industry linkages. It conducted a survey of Ohio businesses to explore their training programs. This survey revealed that companies and colleges often work at cross-purposes toward similar objectives. These results imply a need for better communication and understanding on both parts. This led the Board to recommend specifically that colleges make an internal assessment of their commitment and of their existing organizational procedures as they relate to business and industry training. (p.9)

Conclusion

The literature reviewed provided information about the four categories of comparison for this study: types of community and junior college linkages with business and industry, contact offices or divisions of colleges that handle linkages, institutional personnel involved in administering linkages, and institutional purposes for linkages. A sizable majority of this information was descriptive, or anecdotal, in nature. Some information was available, however, that was analytical and consultative in nature.

Chapter IV

PROCEDURES AND DATA ANALYSIS

Study Sample

This study compared and contrasted the business and industry linkage structures of Pennsylvania community and junior colleges with the linkage structures described by researchers, administrators, and other writers in the field. Surveys were sent to 30 representatives at community and junior colleges in the Commonwealth. This represented the entire list of Pennsylvania community, technical, and junior colleges in the Community, Technical, and Junior College Directory. (American Association of Community and Junior Colleges, 1982, pp. 58-59) The representatives chosen were those presidents, acting presidents, and superintendents identified for the colleges on the list. Two exceptions were made to this, based on personal contacts with personnel at the Community College of Allegheny County (CCAC) and Westmoreland County Community College (WCCC) on April 20, 1983. Robert Camphire, Dean of Continuing Education at the Boyce Campus of CCAC, after recommending sending the surveys to the presidents of the colleges, updated the names and titles of the appropriate people on the four compuses of CCAC. Daniel Obara, Assistant Academic Dean for Business at WCCC, also supported sending the surveys to personnel in such positions at the colleges, but volunteered to be the representative for his institution. The surveys were mailed Friday, April 22, 1983, and were returned by June 7, 1983.*

*Thirteen surveys were returned by the original May 4 deadline and were tabulated in the original report. Six additional surveys were received by June 7 and their results are included in this revision.

Method of Obtaining Data

Instrument used. A questionnaire was developed for this study by its author. It consists of multiple-choice and short answer questions relating to the four research questions of the study. A copy of this survey and its cover letter are appended to this report. (Note: The survey itself consisted of two pages. Although these were printed as two separate pages for this appendix, they were printed on opposite sides of the same page for those copies mailed to the colleges.)

The survey was reviewed for clarity and accomplishment of purpose by three practitioners. They were Robert Camphire, Dean of Continuing Education at the Boyce Campus of the Community College of Allegheny County; Joan Koss, Assistant Professor in the Educational Psychology Department of Indiana University of Pennsylvania; and Daniel Obara, Assistant Academic Dean for Business at Westmoreland County Community College.

Data Analysis

A total of 19 of the 30 surveys were returned. Two methods were used to analyze the data provided by them. Tabulations with numbers and percentages were used for the first and third sections. Narrative descriptions were used for the second and fourth sections.

Types of linkages. A detailed analysis of the results of the first section of the survey, on types of linkages, is provided in Table I. Eighteen of the 19 respondents reported some type of cooperation with business and industry, with one of the 18 noting that his institution had no formal agreements. According to the survey, the most frequently occurring

types of linkages were business and industry representation on advisory committees, practicum experiences for students, teaching and special presentations by business and industry personnel, and customized training. Sharing of physical resources, faculty visits to work sites, and faculty releases were reported as the least frequently occurring types of linkages.

Table I - Frequency of Occurrence for Different Types of Linkages

Type of Linkage	Number*	Percentage
B/I Representation on Advisory Committees	17	89.5
Practicum Experiences for Students	16	84.2
Teaching and Special Presentations by B/I Personnel	16	84.2
Customized Training	15	78.9
Student Visits to Work Sites	12	63.2
Special Services for B/I	10	52.6
Sharing of Physical Resources	6	31.6
Faculty Visits to Work Sites	6	31.6
Faculty Releases	2	10.5
Other: Degree Programs in Conjunction with Life Insurance Industry's Certification Examinations	1	5.3
Faculty Speak to Business People at Meetings of Professional Organizations	1	5.3
No Collaboration	1	5.3

* A total of 19 colleges responded to the survey.

Contact office/division of institution. The nature of the responses in this section indicated that the respondents did not answer all the items as intended. For example, many respondents answered only by writing an "X" in one of the three spaces, when they were instructed to write initials that corresponded with answers to items in the first section of the survey. However, some conclusions about the information received were still justifiable.

Seven of the 19 respondents indicated that their institutions had a centralized office for following up and administering some or all of their business and industry linkages. Of these, three reported the existence of special centers as described in the literature. The other four listed their centralized offices as "Cooperative Education/Placement", "Industrial Marketing Division", "Office of Continuing Education", and "Office of Special Projects."

Only four respondents indicated that individual departments administer linkages. Ten indicated that "other" offices or divisions perform this function, with most of these indicating that more than one such component is involved in this way. Those components most frequently listed in this item were Continuing Education and Advisory Committee components. Specific Offices and Divisions - such as the Business Division office, President's Office, Community Services Division, and Department of Special Projects - were each mentioned by only one of the respondents.

One respondent, as mentioned previously, reported that his institution had no business and industry linkages, and, therefore, no contact office or division. Two others left this section blank.

Institutional personnel involved in linkages. Table II contains an analysis of the results of the third section of the survey. Overall, eleven colleges reported that they had staff members involved in administering linkages on a full-time basis, and nine had staff involved on a part-time basis. Three respondents indicated that their institutions had staff involved on both full- and part-time bases, while two others indicated that their institutions had no staff involved in administering linkages.

Table II - Number of Staff Members Involved in Administering Business and Industry Linkages

	Number of Staff Involved on Full-time Basis*		
	0	1-2	3-5
Number of Institutions:	8(42%)	5(26%)	6(32%)

	Number of Staff Involved on Part-time Basis*		
	0	2-3	6 or more
Number of Institutions:	10(53%)	4(21%)	5(26%)

*Three respondents reported both full- and part-time staff, and two reported no staff involved.

The job titles of staff members reported to be involved in administering business and industry linkages are listed in Table III. Specialized Coordinators and Directors were often mentioned as being involved full-time. Deans, Assistant Deans, and specialized Directors were frequently reported as being involved on a part-time basis.

Table III - Job Titles of Staff Members

Involved in Administering Business and Industry Linkages

Staff With Full-time Involvement

- Assistant to Executive Dean
- Associate Dean of Continuing Ed.
- B/I Coordinators (3)*
- Cooperative Ed. Coordinator
- Coordinators (three at each of two institutions)
- Coordinator for Specialized B/I Programs
- Coordinators of Continuing Ed. (2)*
- Dean of Continuing Ed.
- Director of Cooperative Ed.
- Director of Human Resources
- Director of Special Projects (one at each of two institutions)
- Director of Training Center
- Marketing/Accounting Managers (5)*
- Secretary (1 at each of 2 institutions)
- Special Assistant to President

Staff With Part-time Involvement

- Ass't Academic Deans (3)*
- Ass't Dean for Career Programs
- Ass't Dean of Business
- Ass't Dean of Technologies
- Ass't Deans of Instruction (2)*
- Ass't to Executive Dean
- Ass't to President
- Continuing Education Specialist
- Coordinator of Continuing Ed.
- Dean of Academic Affairs
- Dean of Continuing Ed. (one at each of two institutions)
- Department Chairpersons (6 at one institution; 4 at another)
- Director of Assessment Contracts
- Director of Continuing Ed. (one at each of two institutions)
- Director of Evening Division
- Director of Special Projects
- Division Deans (2)*
- Divisional Directors (2)*
- Faculty - for externships (13)*
- Placement Officer
- Public Relations Officer
- Registrar & Continuing Ed. Officer

*Numbers in parentheses indicate that more than one such person is involved at a particular institution.

Institutional purposes for linkages. Only six of the respondents completed the fourth section of the survey as the directions indicated; therefore, no specific conclusions can be drawn from these results. In general, these six respondents indicated purposes that were implied by the nature of the linkage activity. (Customized training is offered to use college expertise in meeting business and industry's needs; cooperative education is offered as a means of combining practical experience with classroom learning; and business and industry personnel teach on campus to keep the colleges abreast of the latest developments in various fields.) A few specific responses were worth noting. Several respondents, including those who did not complete this section as directed, mentioned the general purposes of community services and additional income. Also, one Dean noted that her college utilizes faculty visits to work sites for the purpose of looking for job availabilities and for performing follow-up studies on working students.

With a total of 19 responses, the nature of the survey results was mixed. The results of the first section indicated that Pennsylvania's community and junior colleges utilize a broad range of types of linkages, with certain types having wide acceptance. The second section's results showed that these linkages are administered through various offices and divisions of the colleges, with only a few institutions having a centralized component for them. The results of the third section indicated that numerous different types of personnel are involved in administering linkages on both full- and part-time bases. Finally, the fourth section's results,

while not being as decisive as intended, showed that most purposes for linkages are implied by the nature of the linkage activity and evolve from the colleges' basic philosophy of community service.

Chapter V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND SIGNIFICNACE OF STUDY

Recently, community and junior colleges have become increasingly involved in various types of linkages with business and industry. Evolving from this increasing involvement is a need for more information about the extent and types of linkages. This study was intended to help meet this need.

Statement of the Problem

The purpose of this study was to compare and contrast the business and industry linkage structures of Pennsylvania community and junior colleges with the linkage structures described and advocated by researchers, administrators, and other writers in the field. This was done by first reviewing the literature, then developing and conducting an appropriate survey of Pennsylvania colleges. Finally, the findings of the literature were compared and contrasted with the results of the survey to assess the current linkage structures in the Commonwealth.

Research Objectives, Findings, and Conclusions

The comparison between Pennsylvania colleges and the findings in the literature was done with respect to four questions. The findings and conclusions for each are given below.

1. What types of business and industry linkages are used by community and junior colleges?

Various types of linkages were identified in the literature: customized training programs, practicum experiences for students, sharing of physical and human resources, and others. The results of the survey indicated that many of these are practiced in Pennsylvania while others, particularly sharing of physical resources, faculty visits to work sites, and granting of faculty releases, are apparently not seen as worthwhile at this time by colleges in the Commonwealth.

2. Through what contact office or division of the colleges are the linkages administered?

The literature revealed that designating a centralized office to administer business and industry linkages in community and junior colleges would be a beneficial practice. In somewhat of a contrast to this, more than half of the surveys returned showed that linkage efforts are administered through a number of offices dispersed throughout each college. The utilization of a centralized office appears to be a relatively uncommon practice in Pennsylvania colleges.

3. What personnel of the colleges are involved in administering the linkages?

The findings related to personnel are similar to those related to contact offices and divisions. The literature revealed that the utilization of staff members serving full-time in administering business and industry linkages would be effective. However, barely half of the survey respondents indicated this to be the case at their institutions, implying that institutions in this state do not expect such effectiveness from the practice. In contrast to this, both the literature and the survey results showed

that using business and industry representatives on advisory councils is a common administrative practice.

4. What are the colleges' purposes for participating in linkages with business and industry?

The literature revealed that certain types of linkages have clearly outlined purposes while the purposes of others are left to be inferred. The survey results were inconclusive but did, to some extent, serve to support the accuracy of inferring a purpose from the nature of each activity.

Implications

The community and junior colleges of Pennsylvania seem to be strong in the areas of providing appropriate programs to business and industry and in offering their students opportunities to relate their classroom learning to practical experiences. They also seem to have well-established systems for obtaining input from business and industry. These are shown by their frequent use of customized training programs, student practicum experiences and visits to work sites, and business and industry representatives on advisory committees.

Other areas show potential weaknesses. One is that faculty members are not given the opportunity to make use of significant practical experiences in business and industry in order to keep aware of current trends. Such awareness, then, must be provided by means other than this one, which was frequently mentioned in the literature. Also, administrative structures, including staffing matters, do not consistently seem to be as

efficient as they could be. The lack of a centralized office or division and specialized staff members to manage business and industry linkages, as is indicated in the literature, could possibly lead to duplication of effort and neglect of certain details. Finally, there seems to be a potential for financial and academic benefits resulting from the sharing of physical resources.

Significance of Study

A major point of significance of this study is that it identified the potential strengths and weaknesses mentioned above for Pennsylvania community and junior college linkages with business and industry. The identification of these strengths and weaknesses, in one respect, can only be tentative ("potential"), because the study only determined the frequency of occurrence for linkage characteristics, not necessarily the effectiveness or ineffectiveness of them.

In contrast, by determining the frequency of occurrence for these characteristics, specific practices can be identified as either common or uncommon. This can be beneficial in two ways. In some instances, merely recognizing that a certain practice is uncommon helps to produce an awareness of the practice and of its potential usefulness. In other cases, it can be used to produce study questions that may be used as bases for investigation into the reasons for the unpopularity of the practices.

This study identified granting of faculty releases, sharing of physical resources, and centralization of business and industry linkage efforts as uncommon practices among Pennsylvania community and junior

colleges. Therefore, practitioners can possibly become more aware of the existence and potential benefits of these practices. Also, investigations of the advantages and disadvantages of these practices as well as the factors related to the effectiveness of them have been identified as possible areas for future study. The results of this study, then, both support and give further direction to the previously-mentioned calls to develop and disseminate information about community and junior college linkages with business and industry (Gilder, 1981; Gold et al., 1982; Peart, 1977a; Russel, 1978; & Warmbrod et al., 1981).

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INDIANA, PENNSYLVANIA 15705
Center for Community Education • 240 Stouffer Hall • (412) 357-2470

April 22, 1983

As you are probably aware, there is a growing trend among community and junior colleges to work cooperatively with business and industry. These cooperative efforts take a variety of forms and yield a variety of benefits, such as maximizing the use of both participants' resources. However, the number of cooperative agreements is increasing faster than the amount of information available about them. Jamison Gilder of the American Association of Community and Junior Colleges cited representatives from four states as recommending that two-year colleges develop and disseminate specific information about industry-education linkages. Gordon Gold of the National Institute of Work and Learning in Washington, D.C., and Edna Peart of the University of Northern Colorado are among those who have made similar statements.

As a student in the Master of Arts in Adult/Community Education Program at Indiana University of Pennsylvania, I am seeking to develop such information. Specifically, I am studying four aspects of community and junior college/business and industry linkages: (1) types of linkages, (2) contact office/division at the institution, (3) institutional personnel involved in linkages, and (4) institutional purposes for linkages. Your institution, along with the twenty-nine other institutions listed as Pennsylvania members of the American Association of Community and Junior Colleges, was chosen for participation in this study.

Kindly complete the enclosed two-page survey and return it to me by May 4, 1983. I have enclosed a stamped, self-addressed envelope for this purpose.

Thank you for your time and cooperation.

Sincerely,

Richard L. Learn

APPENDIX

COMMUNITY COLLEGE/BUSINESS AND INDUSTRY LINKAGE SURVEY

Completion of the return indicates a willingness to have your opinion included in the total results of the study and for publication purposes.

DIRECTIONS: Please respond to the following questions as they apply to your institution and to its programs over the last year. Directions are outlined in each section.

I. TYPES OF INSTITUTIONAL/BUSINESS AND INDUSTRY LINKAGES

In what way(s) does your institution collaborate with business and industry? (Check all appropriate items.)

____ A. We offer customized training programs to individual businesses. (e.g. Paris Junior College in Paris, Texas, has developed Hydraulic Maintenance training for the Babcox and Wilcox Corporation.)

____ B. We share physical resources (such as special equipment) with certain businesses.

____ C. Our students engage in practicum or internship experiences at designated businesses.

____ D. Some of our faculty members are given release time to work at local businesses.

____ E. Personnal from business and industry teach courses or conduct special presentations on our campus.

____ F. We provide special services to business and industry (services such as professional advice or special presentations).

____ G. Business and industry personnel serve on advisory councils and/or committees for our institution.

____ H. Our students are given the opportunity to visit work sites through their course work.

____ I. Some of our faculty visit work sites on a regular basis.

____ J. Our institution does not collaborate with business and industry.

____ K. Other: _____

_____

II. CONTACT OFFICE/DIVISION OF YOUR INSTITUTION

Through what office/division at your institution are contacts followed up and administered for each type of linkage? (Under each category below, list the appropriate letter(s) from question I.)

_____ Our institution has created a centralized office to handle linkages with business and industry. What is it called?

_____

_____ Each department administers its own linkages.

_____ Other: _____

_____

III. INSTITUTIONAL PERSONNEL INVOLVED IN LINKAGES

How many and which personnel are involved in administering your institution's business and insdustry linkages?

_____ person/people is/are involved on a full-time basis in administering them.
(How many?)

Job titles are: _____

_____ person/people is/are involved on a part-time basis in administering them.

Job titles are: _____

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IV. INSTITUTIONAL PURPOSES FOR LINKAGES

What are the purposes for which your institution has participated in linkages with business and industry? (Please list the purposes for each item responded to in question #1.)

e.g.: D. (Faculty given release time) to keep education current with needs and techniques of business and industry.

A. _____

_____

B. _____

_____

C. _____

_____

D. _____

_____

E. _____

_____

F. _____

_____

G. _____

_____

H. _____

_____

I. _____

_____

K. _____

_____

Please include any other important information about your institution's business and industry linkages not included in this survey.

_____

_____

INSTITUTION: _____

CONTACT PERSON: _____

Please check this box if you would like a copy of the results of this study. ☐

** THANK YOU **

Please return this survey in the enclosed stamped, self-addressed envelope by May 4, 1983, to:

Richard L. Learn
403 N. Second St.
Apollo, PA 15613

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ERIC Clearinghouse for Junior Colleges
8118 Math-Sciences Building
University of California
Los Angeles, California 90024